

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application of:	Koji MATSUMOTO et al.	Before the Board of Appeals
Application No.:	10/538,079	Confirmation No.: 7194
Filed:	June 9, 2005	Art Unit: 1792
For:	METHOD FOR PRODUCING IODINE TYPE POLARIZING FILM	Examiner: Michael G. Miller

REPLY BRIEF

MS APPEAL BRIEF-PATENTS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The present Reply Brief is submitted in response to the Examiner's Answer dated February 3, 2011.

For clarity, the issues presented in the Appeal Brief filed November 8, 2010 will be repeated, and the Reply to the Examiner's Answer will correspond structurally to the arguments section in the Appeal Brief.

I. ISSUE ON APPEAL

The Final Office Action provides three (3) grounds of rejection for review on appeal.

- 1) Claims 1-3, 5, and 8-10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over **Isozaki** (US 6,337,369) in view of **Starzewski** (US 5,670,092).
- 2) Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over **Isozaki** in view of **Starzewski** further in view of **DesMarais et al.** (US 6,362,244).
- 3) Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over **Isozaki** in view of **Starzewski** further in view of **Dempo** (US 5,512,178).

II. NEW POINTS OF ARGUMENT RAISED BY THE EXAMINER'S ANSWER

Appellants are providing this Reply Brief to respond to new points of argument raised in the Examiner's Answer. At pages 3-8 of the Examiner's Answer, the Examiner repeats the rejections using language virtually identical to the rejection set forth at pages 4-9 of the Final Office Action of March 4, 2010.

At pages 8-11 of the Examiner's Answer, the Examiner responds to the arguments in the Appeal Brief.

III. REPLY

The cited references fail to teach or otherwise provide for each of the limitations recited in independent claim 1 (or any of the claims that depend therefrom).

On pages 8-9 of the Examiner's Answer, the Examiner states:

Applicant's first assertion is that the film as claimed is different than the film which is taught by the combination of Isozaki and Starzewski. Examiner respectfully disagrees, as the resultant film of both processes is a PVA base film which has been treated in a boric acid solution and which has iodine adsorbed and oriented on it. Applicant has not claimed further distinct limitations in the application with regards to the film as of this time and has not challenged Examiner's discussion that the composition of the boric acid treatment solution is proper.

Applicant's second assertion, related to the first assertion, is that the structures responsible for creating the polarizing effect in the film are different and as such the films created must be different and therefore not properly combinable. Examiner respectfully disagrees, noting again that the base polymer in all three cases is PVA and that, particularly in the case of Isozaki, the polarizing effect is produced by the dichroic properties of iodine, which is applied to the film prior to stretching and dipping in the claimed bath. Therefore, there is a base similarity of material underlying all three polarizing effects (the PVA which has admixtures of chemicals adsorbed to it) and a person having ordinary skill in the art at the time the invention was made would have considered all three items as related matter.

Appellants traverse the Examiner's assertions above in view of the following considerations.

A polarizing film in which iodine is absorbed and oriented on a substrate film is well known in the art as an "H-sheet," and the polarizing film of **Starzewski** is also well known in the art as a "K-sheet."

The present invention relates to the production method of a polarizing film in which iodine is adsorbed and oriented on a PVA substrate film (i.e., an H-sheet).

Isozaki relates to the production method of a K-sheet polarization film comprising heat treating a polyvinyl alcohol film.

Since **Starzewski** uses polyacetylene, the polarization film of **Starzewski** may seem to be neither an H-sheet nor a K-sheet. However, one of ordinary skill in the art would know that **Starzewski** relates to a K-sheet because (1) polyvinyl alcohol containing polyacetylene is used and (2) a polarization degree of the polarization film at a short wavelength increases after being

heated at high temperature. (See Examples 4 and 5 and Tables 1 and 2 of **Starzewski**. P (at 400 nm) increased from 71% to 99% in Example 4 and from 79% to 94% in Example 5.)

The principle for the appearance of absorbance in a short wavelength range after heat treatment of a K-sheet has been academically studied. From a chemical viewpoint, a K-sheet is a polarizing film produced by heating polyvinyl alcohol to form polyene. The polyene is formed through an intramolecular dehydration reaction. This dehydration reaction does not proceed in water.

Isozaki emphasizes the superiority of its polarizing film, which is an improved K-sheet, over an H-sheet polarizing film. **Isozaki** makes a sharp distinction between the technology of a K-sheet from that of an H-sheet. Again, one of ordinary skill in the art can distinguish an H-sheet and a K-sheet.

The production method of a K-sheet is characterized in that a film is thermally treated in an atmosphere which does not contain water in excess. The treatment in an atmosphere which contains water in excess means treatment in an aqueous solution. Thus, the treatment in an atmosphere which does not contain water in excess can never be any treatment in an aqueous solution. **Isozaki** and **Starzewski** additionally explain that no oxygen is present in this treatment. The necessity of a high temperature and oxygen-free condition is suggested by **Isozaki** in column 4, lines 5-19. **Isozaki** describes the use of “an oxygen-poor atmosphere” for the dry-heat stretching carried out at high temperature. However, **Isozaki** does not describe the use of “an oxygen-poor atmosphere” in connection with wet stretching, which cannot be carried out at high temperature due to the boiling point of water. As such, the condition of being “oxygen-free” for improving the properties of the K-sheet is not required under a wet condition.

Starzewski may not refer to “wet” for the same reason as above since the treating temperature is from 100°C to 300°C.

According to the present invention, iodine is adsorbed and oriented on a PVA film and the production method includes no step for forming a K-sheet. Therefore, the method of the present invention is sharply distinguished from the methods of **Isozaki** and **Starzewski**.

The suppression of the contact between the aqueous solution containing boric acid and oxygen has no technical relationship with the oxygen-poorness during the formation of polyene under a high temperature condition. The improvement of the optical properties of the polarizing film achieved by the suppression of the contact between the aqueous solution and oxygen cannot be expected from **Isozaki** or **Starzewski**. Thus, the present invention achieves unexpected results. Consequently, the method of the present invention would not have been obvious from **Isozaki** in view of **Starzewski**.

As discussed above, **Isozaki** in view of **Starzewski** do not disclose each and every aspect of the pending claims. Appellants respectfully submit that **DesMarais et al.** and **Dempo** do not cure the above noted deficiencies of **Isozaki** and **Starzewski**. As such, each of pending claims 1-6 and 8-10 are also patentable and non-obvious over these cited references, even when combined with the disclosures of **Isozaki** and **Starzewski**.

To establish a *prima facie* case of obviousness of a claimed invention, all of the claim limitations must be disclosed by the cited references. As discussed above, **Isozaki** in view of **Starzewski**, with or without the other cited references, fail to disclose all of the claim limitations of independent claim 1, and those claims dependent thereon. Accordingly, the combination of references does not render the present invention obvious.

For the reasons above, a *prima facie* case of obviousness has not been established, and withdrawal of the outstanding rejections is respectfully requested.

IV. CONCLUSION

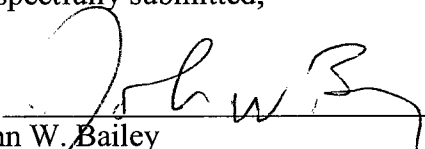
Appellants rely on the arguments set forth in Appellants' Appeal Brief for those issues the Examiner has merely repeated as set forth in the claim rejections. For all of the reasons set forth above, each of the rejections in the Examiner's Answer dated February 3, 2011 is improper. The Final Rejection should accordingly be reversed by the Honorable Board.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

Dated: April 1, 2011

Respectfully submitted,

By


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